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ABSTRACT

The author provides an overview and conceptualization of the total educational and educational facility planning process. The presentation attempts to provide a simple practical outline for local planners, so they may actively engage in relevant educational facility planning, and a common conceptual base, so the various components of Project Simu-School may design research and development projects that will enhance the planning process. The author considers four alternative levels of educational planning: the educational facility plan (the most commonly utilized process for determining school building needs); the educational improvements needed for the system as a whole and translated into educational facility needs; the development of a comprehensive-coordinated land use plan of which the educational plan is a part; and the development of recommended plans for improving the quality of life and living for all residents--to increase lay citizen participation, understanding, control, and support of education; and diffuse and share planning and decisionmaking. (Author/DN)

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PLANNING FOR FUTURE FORMS OF EDUCATION:
TOWARDS AN EDUCATIONAL AND EDUCATIONAL FACILITIES PLANNING MODEL

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CHICAGO PUBLIC SCHOOLS

JAMES F. REDMOND,
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EA 005 530

PLANNING FOR FUTURE FORMS OF EDUCATION: TOWARDS AN EDUCATIONAL AND EDUCATIONAL FACILITIES PLANNING MODEL

By

Donald J. Leu

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FOREWORD

Project Simu-School was conceived by the Committee on Architecture in Education of the American Institute of Architects in cooperation with the Council of Educational Facility Planners (CEFP). Its main objectives are:

To improve the state-of-the-art in educational planning by encouraging research and development.

To upgrade planning capabilities in local areas.

To improve knowledge and skills of educational planners.

To investigate alternative strategies for specific planning problems.

To provide easy access to information about planning.

To promote wider community involvement in the planning process.

This paper was developed by the Chicago component of Project Simu-School in an attempt to promote the above mentioned objectives.

NOTE

The work reported herein was performed pursuant to a grant from the U.S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U.S. Office of Education, and no official endorsement by the U.S. Office of Education should be inferred.

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I. INTRODUCTION

Purpose and Use of This Report

Historically, educational and educational facility planning has been largely characterized by short-term school building solutions to immediate and critical problems. It has been pragmatic with a limited philosophical, theoretical, scientific, technological, or research and evaluation base. Now educational and facility planning often fits into a larger picture and involves a greatly expanded range of data and decisions. This paper is designed to overview and conceptualize the total planning process.

This overview is intended to achieve two objectives:

(1) To provide a simple practical outline for local planners so they may actively engage in relevant educational facility planning.

(2) To provide a common conceptual base so the various components of Simu-School may design research and development projects which will enhance the planning process.

It is recognized that this simplified outline does not simplify the phases of planning and research nor does it make the task of the planner and researcher easier. It is hoped however that it will help define and facilitate planning problems. The actual tasks of data collection, assimilation and compilation will require various degrees of training and expertise.

Scope of the Educational Facilities Planning Task

Careful and creative planning of future educational facilities is one important problem and opportunity facing our nation. Designing row after row of repetitive "cell block" class-

rooms is no solution to emerging changes in our society and in our schools. New and emerging forms of education are making obsolete the majority of existing school buildings.

This nation began the year with a population exceeding 280,000,000 individuals. During the previous year, despite the dramatic impact of "the pill" and "0-population" growth goals, our population increased by over 2,000,000. This 1% annual gain contrasts with 1 2/3% in 1956, the greatest net population increase ever recorded of 3,000,000. Population growth has slackened - but it continues.

The critical importance of carefully planning future forms of education is obvious. School construction in the United States (including modernization and rehabilitation) represents an annual expenditure in excess of $7 billion. A major and growing backlog of needed educational facilities continues to exist. Chicago, for example, is currently engaged in a "First Step" building program exceeding $200 million. The backlog of school facility needs for Chicago has been conservatively estimated to exceed $1.5 billion. Furthermore, existing facilities are continuously made obsolete by rapidly shifting populations, the current technological revolution, and new and improved educational programs. Other major urban areas face similar backlogs of needs.

The past decade has witnessed dramatic changes in school design. These educational and architectural changes originate from the rapid socio-economic-technical changes taking place in our society. Citizens, educators, students and planners are teaming together in the planning of new forms of education and new designs of school facilities. These new concepts of education derive their function, emphasis and form from the world surrounding and being served by the schools. Currently, many schools are returning to their original community and people-serving functions. Schools are being redirected, adapted and then adopted and supported by the people they are designed to serve.

In general school planning has three major purposes:

(1) To provide continuous and coordinated data for decisions about educational facilities and planning.

(2) To provide ways for accommodating their original "people serving and community centered" functions.

(3) To cause creative improvements in the physical environment for teaching and learning.

II. ALTERNATIVE LEVELS OF PLANNING

Historically, educational facilities planning has been largely restricted to the use of "internal" school data. The school building, school enrollments, and available school dollars provided the raw data for research, planning and decision-making. In recent years, educational planners have been discovering that many of the more significant factors or variables impacting education may be classified as "external" - data and decisions located outside the formal educational system.

For example, three recent educational planning projects were initially identified as problems of school buildings, school busing, and school budget. "Internal" data were carefully gathered and analyzed. In fact, all three projects required extensive educational program decisions, close planning linkage with a complex metropolitan political infrastructure, demographic data, legal-educational decisions, and sensitivity to rapidly changing socio-economic areas. The problems were unsolvable until there was large-scale community involvement and support. The eventual school site was, for example, a combination library-park-school site that was acquired by trading with a public hospital, and by modifying the city's land-use and traffic plans. Educational planners are moving from isolated "internal" school facility planning towards Comprehensive Planning. Much "external" data are required as well as new planning methods and skills.

Plates I and II illustrate the various levels of planning available to educational planners. Level I Planning (School Facility Planning) has been the most commonly utilized process for determining school building needs. Educational planners are rapidly moving towards Comprehensive Planning as they attempt to solve new, complex and interrelated educational and community problems and opportunities. Isolated educational facility planning is diminishing in use and value.

Implications for Research and Development

Future studies (from throughout the nation) need to be selected and designed to fill existing voids in existing management information and process knowledge at all four levels of planning and to aid educational planners in moving from exclusive use of Level One and Level Two Planning towards the selective utilization of comprehensive planning data and tools.

PLATE I

ALTERNATIVE LEVELS OF PLANNING

PLANNING LEVELS	GOALS PURPOSES	MANAGEMENT INFORMATIO
LEVEL I PLANNING: SCHOOL FACILITY PLANNING	TO PLAN A NEW SCHOOL BUILDING OR ADDITION OR MODERNIZATION OF AN EXISTING SCHOOL	A. SCHOOL FACILITIES B. SCHOOL ENROLLMENT TERM ESTIMATES + C. SCHOOL FISCAL DATA ESTIMATES D. SCHOOL FACILITY PL
LEVEL II PLANNING: EDUCATIONAL PLANNING	TO PLAN EDUCATIONAL IMPROVEMENTS TO THE TOTAL SCHOOL SYSTEM - TRANSLATED TO EDUCATIONAL FACILITY NEEDS	A. LEVEL I INFORMATIO B. EDUCATIONAL GOALS, PRIORITIES C. EDUCATIONAL PROGRA ORGANIZATION, SIZE D. FUTURE EDUCATIONAL
LEVEL III PLANNING: URBAN-EDUCATIONAL PLANNING	TO DEVELOP A COMPREHENSIVE-COORDINATED LAND USE PLAN - INCLUDING AN EDUCATIONAL AND SCHOOL FACILITIES PLAN	A. LEVELS I & II INFO B. GOALS AND OBJECTIV AREA + C. DEMOGRAPHIC DATA D. COMPREHENSIVE LAND
LEVEL IV: COMPREHENSIVE PLANNING	TO DEVELOP RECOMMENDED PLANS FOR IMPROVING THE QUALITY OF LIFE AND LIVING FOR ALL RESIDENTS. TO INCREASE LAY CITIZEN PARTICIPATION, UNDERSTANDING, CONTROL AND SUPPORT OF EDUCATION. TO DIFFUSE AND SHARE PLANNING AND DECISION-MAKING.	A. LEVELS I, II & III B. SOCIO-ECONOMIC-POL C. GOALS AND OBJECTIV OF LIFE' D. LONG RANGE COMPREH (EDUCATIONAL AND E PLANS AS 'SUBSYSTE COMPREHENSIVE PLAN

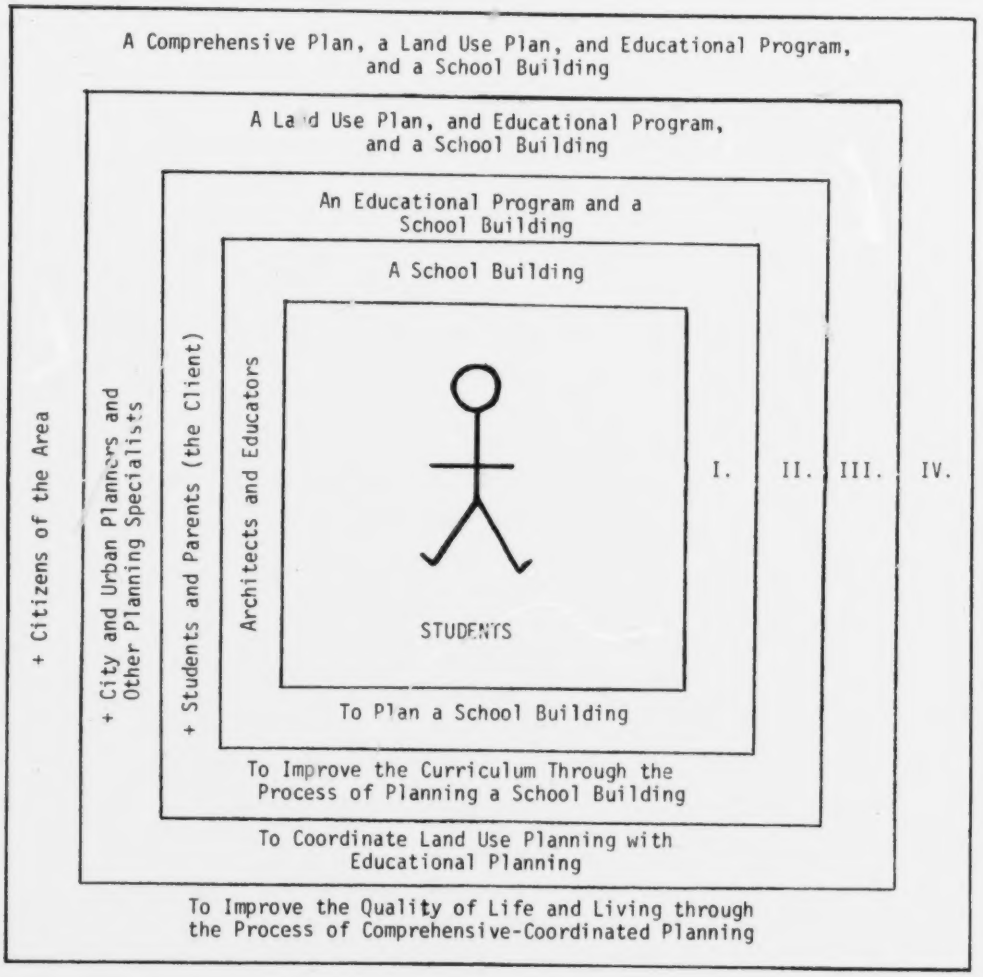
PLATE I

ALTERNATIVE LEVELS OF PLANNING

GOALS PURPOSES	MANAGEMENT INFORMATION SYSTEMS
TO PLAN A NEW SCHOOL BUILDING OR ADDITION OR MODERNIZATION OF AN EXISTING SCHOOL	A. SCHOOL FACILITIES INVENTORY + B. SCHOOL ENROLLMENT DATA AND SHORT-TERM ESTIMATES + C. SCHOOL FISCAL DATA AND SHORT-TERM ESTIMATES D. SCHOOL FACILITY PLAN
TO PLAN EDUCATIONAL IMPROVEMENTS TO THE TOTAL SCHOOL SYSTEM - TRANSLATED TO EDUCATIONAL FACILITY NEEDS	A. LEVEL I INFORMATION + B. EDUCATIONAL GOALS, OBJECTIVES, PRIORITIES C. EDUCATIONAL PROGRAM DATA - SCHOOL ORGANIZATION, SIZE, ETC. + D. FUTURE EDUCATIONAL PLANS AND PRIORITIES
TO DEVELOP A COMPREHENSIVE-COORDINATED LAND USE PLAN - INCLUDING AN EDUCATIONAL AND SCHOOL FACILITIES PLAN	A. LEVELS I & II INFORMATION + B. GOALS AND OBJECTIVES FOR THE AREA + C. DEMOGRAPHIC DATA D. COMPREHENSIVE LAND-USE PLANS
TO DEVELOP RECOMMENDED PLANS FOR IMPROVING THE QUALITY OF LIFE AND LIVING FOR ALL RESIDENTS. TO INCREASE LAY CITIZEN PARTICIPATION, UNDERSTANDING, CONTROL AND SUPPORT OF EDUCATION. TO DIFFUSE AND SHARE PLANNING AND DECISION-MAKING.	A. LEVELS I, II & III INFORMATION + B. SOCIO-ECONOMIC-POLITICAL-LEGAL DATA + C. GOALS AND OBJECTIVES - 'THE QUALITY OF LIFE' D. LONG RANGE COMPREHENSIVE PLANS (EDUCATIONAL AND EDUCATIONAL FACILITY PLANS AS 'SUBSYSTEMS' OF THE COMPREHENSIVE PLAN)

A MODEL ILLUSTRATING THE LEVELS OF PLANNING

C. THE TASK TO BE ACCOMPLISHED?


A Comprehensive Plan, a Land Use Plan, and Educational Program, and a School Building
A Land Use Plan, and Educational Program, and a School Building
An Educational Program and a School Building
A School Building
STUDENTS
To Plan a School Building
To Improve the Curriculum Through the Process of Planning a School Building
To Coordinate Land Use Planning with Educational Planning
To Improve the Quality of Life and Living through the Process of Comprehensive-Coordinated Planning
+ Citizens of the Area
+ City and Urban Planners and Other Planning Specialists
+ Students and Parents (the Client)
Architects and Educators
I.
II.
III.
IV.

B. STAFF INVOLVED IN PLANNING

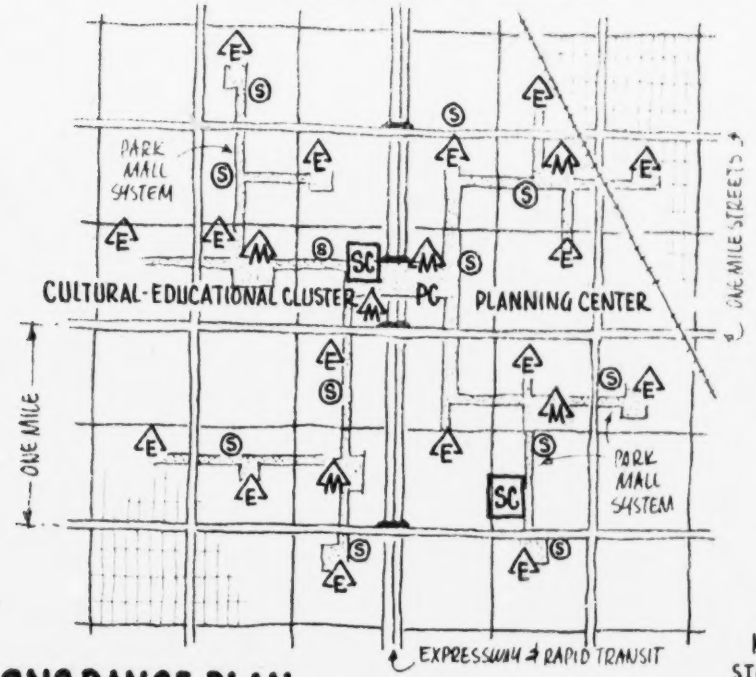
D. LEVEL OF PLANNING

PLATE II

A. THE PURPOSE OF PLANNING?

III. AN OVERVIEW OF FOUR ALTERNATIVE (OPTIONAL) LEVELS OF EDUCATIONAL FACILITY PLANNING

SCHOMES, ELEMENTARY CENTERS, MIDDLE SCHOOLS AND SECONDARY CENTERS



LONG RANGE PLAN

			NO. OF STUDENTS
(S)	12	SCHOMES (early childhood)	
E	16	ELEMENTARY CENTERS	14,000
M	6	MIDDLE SCHOOLS	8,000
SC	2	SECONDARY CENTERS	8,000
			30,000

PLATE III

The development and implementation of a long-range educational facility plan can make a significant contribution to improving the quality of life and living within a community or school system. Winston Churchill once remarked, "We shape our buildings, but thereafter they shape us."

When developing or designing any educational facility plan, the educational planner has a number of process and scope alternatives or options facing him. These process-scope options include involving others in the planning process, relating the school building goals to broader educational and/or area purposes, and defining the task in its narrow or broader aspects (see Plates I and II.) These optional planning decisions will be conditioned by such restraints as:

1. Time available for planning.
2. Budget available for planning.
3. Existing data availability.
4. Technical skills of the planner.
5. Priority importance of the task.
6. Need for public understanding and support.
7. "Mind set" of the planner.

It is necessary to gather information and mix it in different combinations for a planning decision. The organization of the various types of necessary information is critical toward making planning and management decisions. This organization could be called a Management Information System. It includes data and assumptions about goals and values. It is impossible to use a "Management Information System" until the planner decides and clearly states which level of planning will be utilized on a specific planning task.

To aid in setting research and development tasks, priorities and in designing articulated "planning packages" which are useful and useable to local planners in making decisions, the writer has developed the following overview of the components of four alternative levels of planning.

Basic Planning Assumptions

Every educational plan is based upon a number of stated (or hidden) value-goal-process assumptions. The basic planning assumptions shaping this report are:

1. Every school building should represent the architectural expression of a desired and clearly stated educational program.
2. Every public educational program should be designed to serve the values-goals-desires-aspirations and needs of the client-user (students and parents).
3. Educational goals and objectives need to be developed, linked, and made explicit prior to developing any educational or educational facility plan whether it be for city, metropolitan, suburban or rural areas.
4. Educational program inputs focusing on individualization, humanization and modern learning theory need inclusion into any educational facility plan.
5. The client-users (parents, students, lay citizens) are needed and entitled to a meaningful involvement in planning and decision-making.
6. The rapid demographic changes confronting urban and rural America need inputing into any educational plan.

7. A team of planners including lay citizens, educators, urban and city planners, economists, lawyers and systems planners is required. Individual members of the team will have changing roles and responsibilities as the planning progresses.

8. The careful development of a "long-range plan" is required prior to adopting or evaluating a "first-step" or "middle-range" plan or program.

9. Any plan, involving people, becomes partially obsolete prior to implementation and requires continuous and systematic audits and revisions.

Obviously these assumptions give focus and priority to present and future studies and research. The alteration, deletion or addition to the assumptions will give a different set of priorities. The stating of assumptions are a necessary responsibility of the planner, planning team or research group.

LEVEL ONE - EDUCATIONAL FACILITY PLAN

Components of a "Level One - Educational Facility Plan"

A Level One - Educational Facility Plan would focus on school enrollments, school buildings and available school finance. The required "Management Information System" would be relatively simple and inexpensive and could be easily stored and retrieved for planning purposes. The components would be derived and adapted from the following outline.

COMPONENTS OF A LEVEL ONE - EDUCATIONAL FACILITY PLAN

The first major group of components relate to the number and history of students, the following 14 questions illustrate this group.

A. School Enrollments:

1. How many pre-school children are there?
2. How many students are enrolled in each school, by grade?
3. What is the past history of enrollments?
4. Where do the children live?
5. How many non-resident pupils?
6. How many tuition pupils?
7. How many parochial and private school pupils?
8. What are the expansion or reduction plans of private and parochial schools?
9. What is the history of birthrates?
10. How many new residences are being built or planned?
11. How many and what ages are the children in these new homes?
12. Which enrollment estimating method should be used?
13. What are the assumptions of the estimate?
14. What is the estimate of future enrollments?

PLATE IV

A GRAPH SHOWING THE HISTORY OF BIRTHS IN THE CITY OF CHICAGO

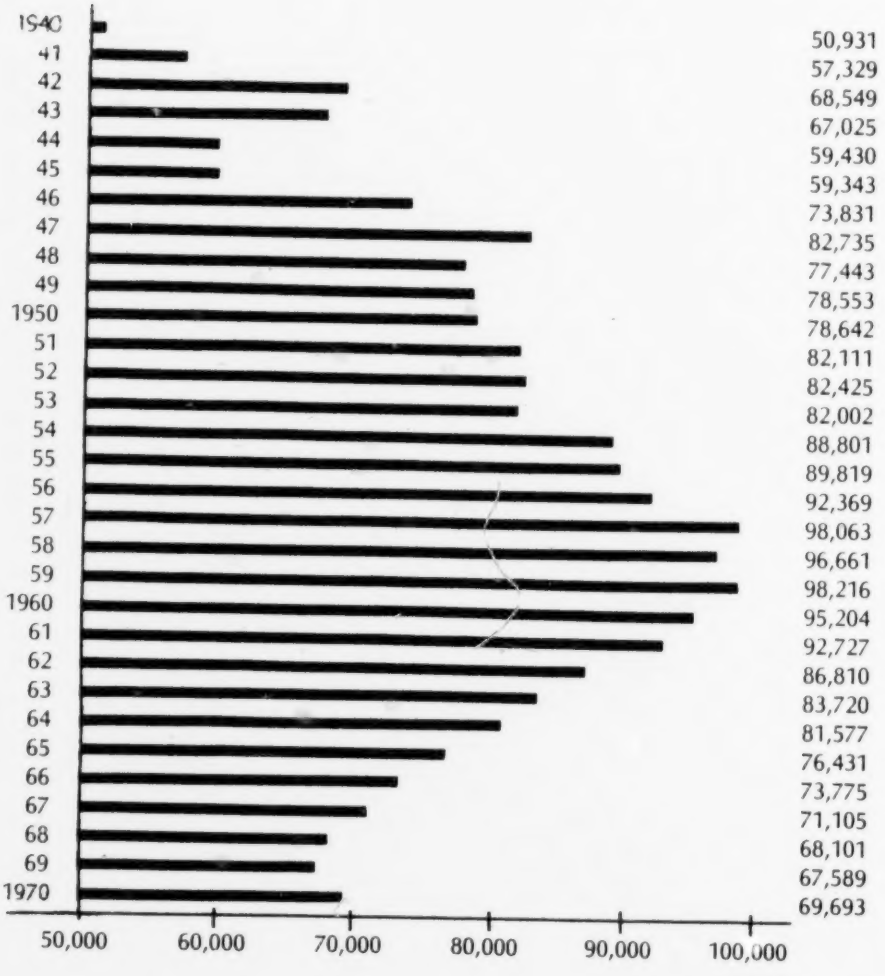
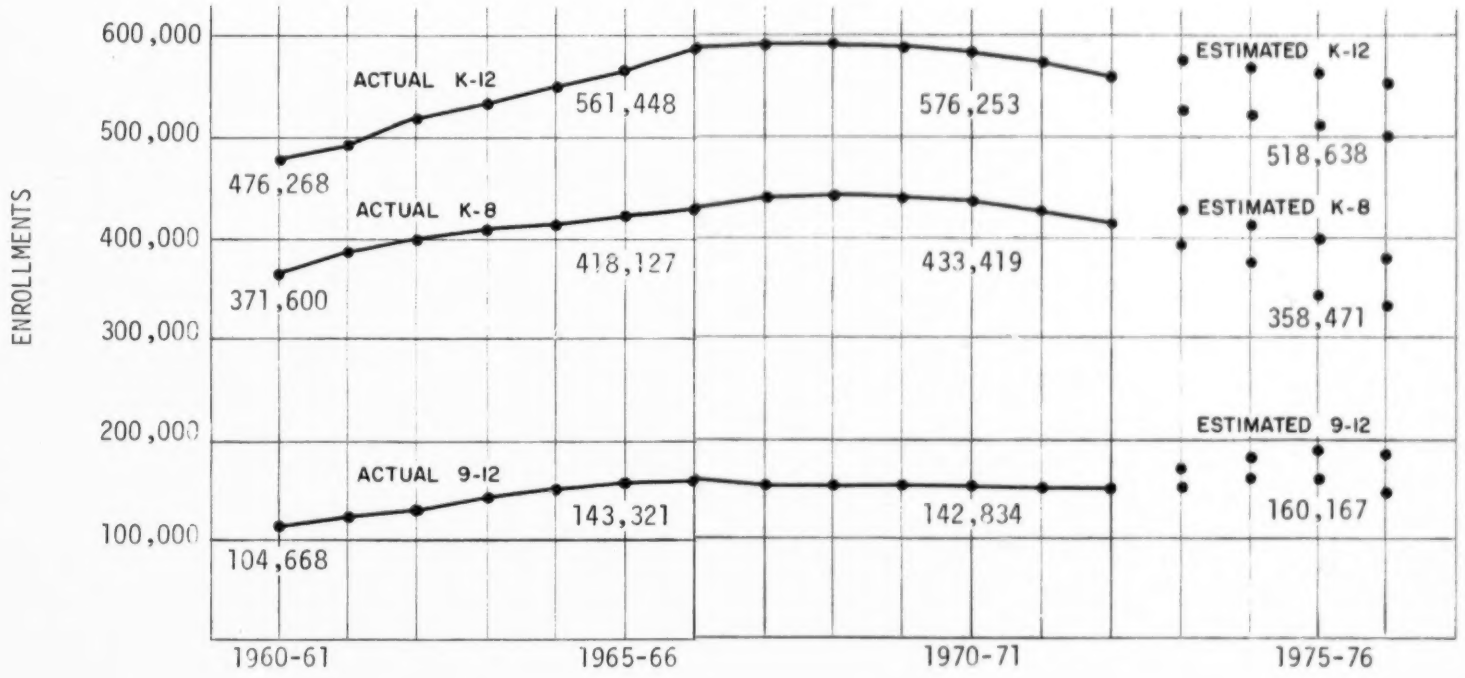


PLATE V

A GRAPH SHOWING PUBLIC SCHOOL ENROLLMENTS (GRADES K-12) 1960-1973 WITH ESTIMATE TO 1977 IN CHICAGO CITY SCHOOLS



Another group of components are clustered around the number, size and adequacy of the existing school buildings and sites.

B. School Buildings:

1. How adequate is each school building in terms of:
   a. age
   b. size of site
   c. educational program
   d. structural safety
   e. pupil capacity
   f. pupil utilization (capacity-enrollment)
   g. estimated enrollment
2. What is the total capacity of all school buildings?
3. What is the total utilization of all school buildings?
4. How safe are the buildings?

The criteria for developing judgment on these questions must be developed. Usually there are existing rating forms which may be used. These range from the number of foot candles for lighting to amount of book storage. Also local building codes offer criteria for judgments as well as the professional judgments of teachers, custodians, administrators, architects and engineers.

C. Recommendations:

The data from components in A and B must then be analyzed in terms of the assumptions and need. After such an analysis decisions and consensus can evolve. These recommendations would include:

1. A recommendation regarding the adequacy of the existing school buildings in terms of educational goals.
2. What modernization is needed?

3. What new facilities are needed?

4. What are the recommended steps in the proposed building program?

5. How much will it cost?

6. How should it be financed?

7. How will it affect the tax rate?

An illustration of these group C components is illustrated by Plate VI which discusses the cost factor.

PLATE VI

PRELIMINARY CONSTRUCTION COST ESTIMATES

THE LONG-RANGE PLAN - CHICAGO CITY SCHOOLS

1. Schomes (early childhood)	($2600/pupil x 20,000 pupils)	$ 52,000,000
2. Elementary Centers (K-5)	($2300/pupil x 25,188 pupils)	57,932,400
3. Middle Schools (6-8)	($3500/pupil x 38,000 pupils)	133,000,000
4. Secondary Schools (9-12)	($5400/pupil x 70,000 pupils)	378,000,000
5. Special Education	($4000/pupil x 19,000 pupils)	76,000,000
6. Learning Enrichment Centers	(4 @ $2,500,000 each)	10,000,000
7. Planning Centers	(4 @ $1,200,000 each)	4,800,000
8. Magnet Schools	(4 @ $9,000,000 average cost)	36,000,000
9. Fees (Architect, Legal, Administrative, Management) (8%)		59,818,592
10. Contingency (5%)		37,386,620
11. Furniture and Equipment (15%)		112,159,860
12. Site Purchase (15%)		112,159,860
13. Site Development (5%)		37,386,620
14. Modernization and Rehabilitation ($4 to $17/sq. ft.)		394,698,527
Total Cost		$1,501,342,479

Plate VI summarizes the anticipated cost of construction to provide new spaces to house 134,188 students who were in need of more adequate school facilities and to modernize the facilities for the other 400,000 students.

LEVEL TWO - EDUCATIONAL AND EDUCATIONAL FACILITY PLAN

Components of a "Level Two - Educational and Educational Facility Plan"

One of the basic limitations and weaknesses of Level One planning is that it largely ignores educational goals, objectives, priorities, and our rapidly changing school curriculum. An unstated assumption of Level One planning is the continuation of "what is". Recent years have witnessed the inputing of future-oriented curriculum planning into educational facility decisions. In fact, new or modernized school buildings are often utilized as a "triggering device" to generate or force succinct goals and objectives setting and rigorous curriculum planning. Level Two planning, therefore, would include a school enrollment and school facility information system but this mathematical data would be <u>preceded</u> by the following curriculum components.

A. Goals for Public Education:

Goal statements should give form, focus and space priority to designing future educational programs and resultant educational facilities. They should not be excluded from shaping future school building decisions because of the difficulty of their translation into mathematical figures capable of being easily stored and retrieved by a computerized Management Information System.

School buildings should not be designed and cannot be accurately evaluated without a succinct statement of Goals and Objectives. The following is an example of goal statements. It was extracted from the educational and educational facility plan of one urban school district. It is well to review and adapt such goal statements when beginning any level two plan.

GOALS FOR PUBLIC EDUCATION

1. Improving individual student achievement in the basic subject areas and developing in-depth knowledge and understanding in areas of special interest.
2. Meeting the special needs of students with physical, mental and other handicaps.
3. Providing each student from early childhood with knowledge about occupations, guidance in making vocational choices, and opportunities for the development of economic independence and vocational technical skills.
4. Providing adults with opportunities to pursue programs pointed toward an elementary or high school diploma, or programs to improve their skills or understandings in a particular area of interest.
5. Strengthening learning ability through providing health programs, including medical and nutritional services.
6. Assisting each student to develop a positive self-image and helping him formulate, plan for and achieve worthy and realistic goals with increasing self-direction.
7. Working with parents in relation to the role of the home in developing reading readiness and reinforcing school learning experiences.
8. Improving dialogue between school and community, between individuals within schools, among all groups and especially among cultural groups.
9. Providing for the acquisition of knowledge of minority cultures in our country and the development of a better understanding and appreciation of them.
10. Developing human relations skills.

11. Providing for the development of humane values and of moral and ethical character.

12. Providing not only for the development of citizenship skills and the acceptance of civic responsibility, but also for the development of a social conscience.

B. Educational Program:

Several educational strategies and organizational schemes are possible. The following are examples of questions facing the planner when considering the components relative to the educational program.

(1) What is the most desirable school organization for our school district? (K-6, 3, 3 or ?)

(2) How large or small should our schools be?

(3) What is the desired school program?

(4) Which emerging curriculum concepts do we accept or reject? (Individualization, continuous progress, open space, etc.)

An example of this component would be the following list of basic educational concepts sought by the Chicago City Schools when a major facility program is planned. The intent was for the facility to be planned to help make it possible to implement the educational concepts.

HUMANIZATION: REORGANIZATION OF PUPIL SUPPORT SERVICES

1. Zero Reject Conept
2. Early Intervention
3. The Guide Concept
4. Learning Groups

5. Support Services
6. Occupational Guidance
7. Community Participation

CURRICULUM AND INSTRUCTION ORGANIZATION: INDIVIDUALIZATION

1. Individualized Learning
2. Vertically Integrated Occupational Curriculum
3. Variable Grouping
4. Bilingual Schooling
5. Modular Scheduling
6. Differential Staff Utilization

SCHOOL ORGANIZATION: FACILITY IMPLICATIONS

1. Schomes: Early Childhood Centers
2. Elementary Centers of Learning
3. Middle Schools
4. Modified Secondary Level Education
5. Magnet Schools
6. School within a School
7. Cultural-Educational Cluster
8. Planning Center
9. Learning Enrichment Centers

(5) What provisions should we make for exceptional children? (Handicapped, gifted, retarded.)

(6) To what extent will the community use our schools?

C. School Enrollments:

(See Plate III, Level One Planning)

D. School Facilities:

(See Level One Planning)

E. Summary and Recommendations:

1. What are the educational goals and objectives?
2. What is the desired educational program?
3. In light of future programs and numbers, what organization of instruction, programs and pupils will be in operation?
4. What changes are estimated in school enrollments?
5. Given the desired educational program and organization for instruction, what are the necessary and specific characteristics of a school building or buildings required?
6. What new or modernized facilities are needed?
7. How much will it cost?
8. How should it be financed?
9. What are the next steps in educational planning?

LEVEL THREE - LAND USE, EDUCATIONAL PROGRAM, AND EDUCATIONAL FACILITY PLAN

Components of a "Level Three - Land Use, Educational Program, and Educational Facility Plan"

The planning and locating of educational facilities should be carefully coordinated with other public and private planning agencies. Schools, parks, libraries, churches, social service agencies, and transit systems serve the same populations with overlapping and often duplicating functions. For example, it is poor planning to locate a new school site without careful attention to the future location of new parks, highways, urban renewal projects or industrial expansion. These illustrations are a few examples of the increasing need for coordinated school-community planning. The city or metropolitan planning agency is the single most important unit able to aid the school building planners.

Level Three Planning is designed to "input" land use planning into educational and educational facility planning. The basic land-use information which needs coordination with educational planning is summaried by the following questions:

1. What is the existing physical form of the area?
2. How do we currently use our land?
3. What should be the future physical form of the area?
4. What are the land-use goals and objectives for the area?
    a. Moving people and goods?
    b. The proper allocation of land?
        (1) Housing and how many people?
        (2) Industry and commerce?
        (3) Public service?
        (4) Open space and recreation?
    c. Unified area development?

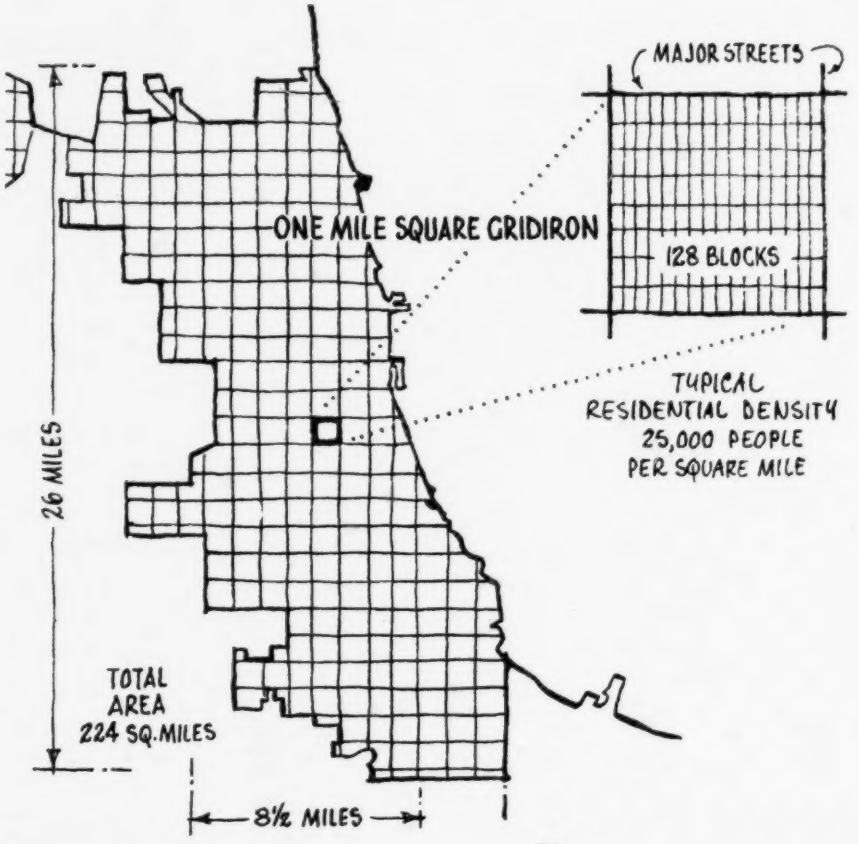
The task of coordinating and meshing the various publics and agencies into a coordinated plan is naturally very complex.

Level One Planning involves some interaction with community and staff involvement but planners on Level Three will discover the need to spend vast amounts of time getting ideas and consensus from the various groups and individuals involved.

1. What is the existing physical form of the area? An example to illustrate this component is shown by Plate VII.

PLATE VII

THE PHYSICAL FORM OF CHICAGO



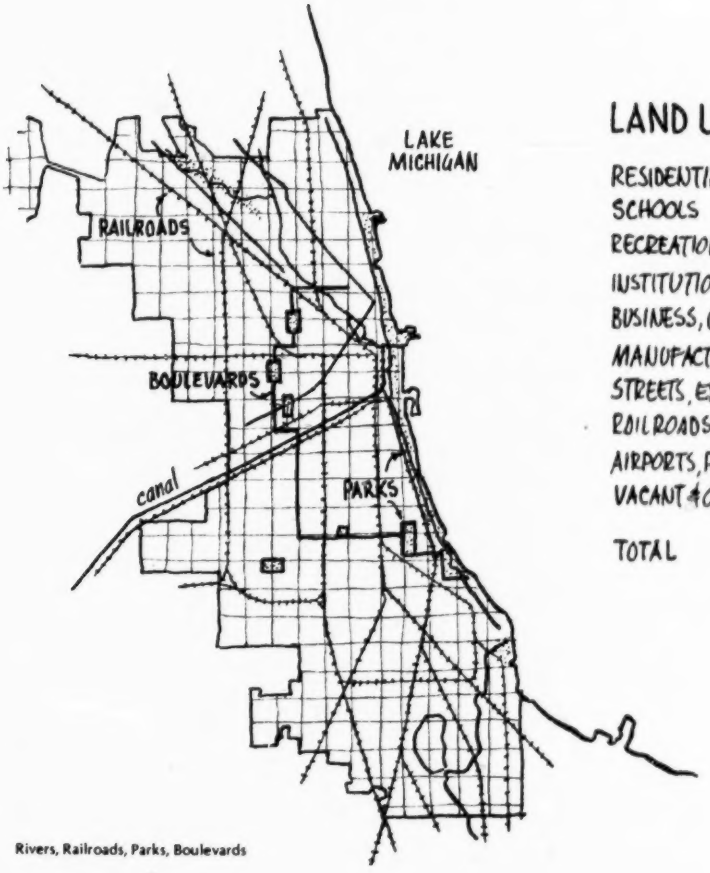
Chicago's Basic Form

Chicago's basic form is a direct resultant of an unknown 19th century surveyor laying down a strong and repetitive gridiron of major streets. Each square mile was then subdivided into 128 blocks. The total form consists of a city 26 miles long and 8-1/2 miles wide broken into regular square mile grids. In a typical square mile, streets and alleys occupy about 35 percent of the total land area. The density of a residential mile has saturated at approximately 25,000 residents. Obviously, some areas have exceeded 25,000 residents while others are far under this figure because of land use, transit systems, and demographic variables. Nevertheless, Chicago's basic form is strong, repetitive, and consistent throughout large areas of the city. The one-mile grid in combination with the frontage on Lake Michigan gives the city a form uniquely different from any other major city in the United States.

Similarly Plate VIII illustrates the ideas of land use.

PLATE VIII

A CHART ILLUSTRATING THE KIND AND MAGNITUDE OF LAND USE FOR THE CITY OF CHICAGO



Rivers, Railroads, Parks, Boulevards

LAND USE ...

RESIDENTIAL	71
SCHOOLS	4
RECREATION	17
INSTITUTIONS	5
BUSINESS, COMMERCE	17
MANUFACTURING	11
STREETS, EXPRESSWAYS	54
RAILROADS	16
AIRPORTS, PORTS, UTILITIES	10
VACANT & OTHER	19
TOTAL	224

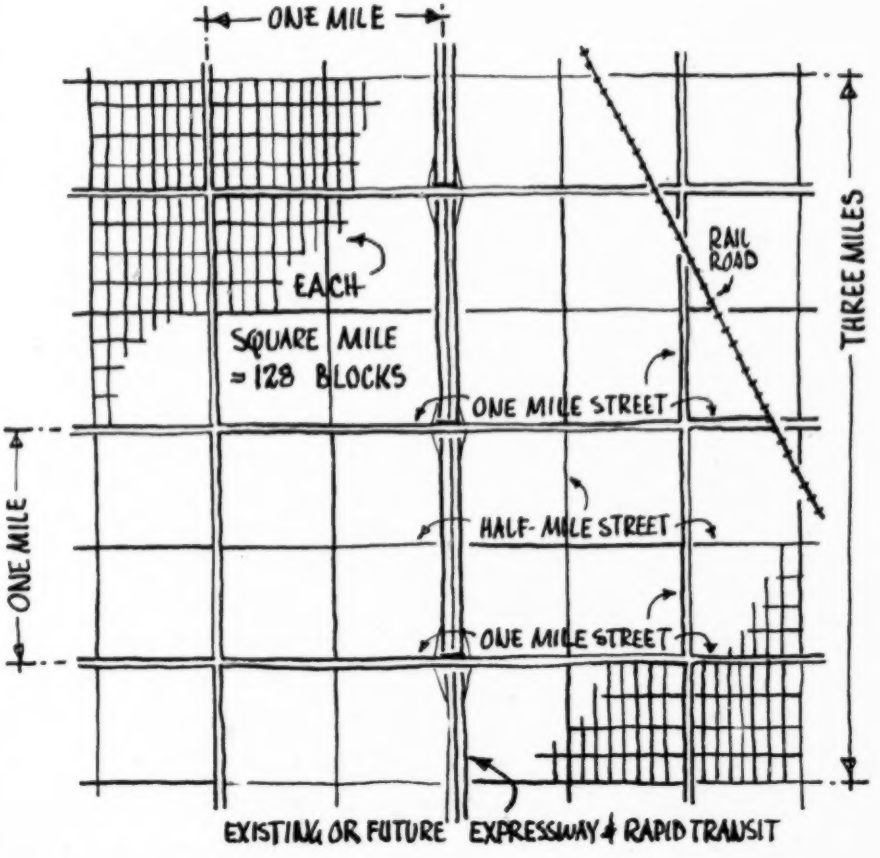
SQUARE MILES

Overlaying the basic form of the city are the rivers, and the man-made railroads, parks, and boulevards built during the 19th and early 20th centuries. Of the city's 224 square miles, only 4 square miles are used by schools. By all standards, this is too little land for education, as a casual inspection of existing school sites clearly reveals.

Once the existing physical form and land use is known, the planner then can give substance to what should be the future physical form of the area. Plates IX and X are indicative.

PLATE IX

DIAGRAM OF A FOUR SQUARE MILE BLOCK IN CHICAGO



Corridors Extend into the Suburbs

PLATE X

AN ILLUSTRATION OF POSSIBLE LAND USE SHOWING PARK MALLS AND BUSINESS ZONING

THE FUTURE FORM OF CHICAGO

The Comprehensive Plan of Chicago sets forth new form-giving elements for the city, which are based on the city's existing structure but which make modifications to insure its continued vitality into the 20th and 21st centuries. At the regional or city-wide level, corridors of high accessibility would guide the form of future development. At the local community level, park-malls would establish a framework for the development and renewal of residential areas.

LEVEL FOUR - COMPREHENSIVE, LAND USE, EDUCATIONAL AND EDUCATIONAL FACILITIES PLAN

Components of a "Level Four - Comprehensive, Land Use, Educational and Educational Facilities Plan"

Educational planners must consider and understand the complex socio-economic-political changes presently taking place in our metropolitan and rural areas. Recent legal mandates and opinions have direct implications for the size, location and educational programs of thousands of existing and future school buildings.

It is impossible to identify specific socio-economic-political-legal data needed for comprehensive educational planning in widely different school districts. Each planning task and each school district contains unique conditions to negate a single national package of data. Therefore, the Level Four Management Information System must be individually designed.

Prior to outlining needed data, it is necessary to determine the unit of analysis: county, city, school district, area sub-district, secondary school attendance area, elementary school attendance area, etc. If one assumes the need for data that have historical, continuous and comparative characteristics, you have eliminated all existing sub-units of the school district. School attendance areas, for example, have a history of frequent minor adjustments and occasional major changes. Total district data provides useful "means", but is of little use in educational planning for the diverse and changing sub-areas of a large school district. Working in cooperation with demographers and city planners, the educational planner needs to develop "Educational Planning Units." These planning units (EPU's) are based on combinations of United States Census tracts to insure historical, continuous and comparative data on relatively small, changing sub-areas of a school district.

The following questions outline basic Level Four Planning data currently available and needed for input into long-range educational planning:

1. What are the human values of the population?

Any educational system or plan should be designed and evaluated in terms of its real (operational) goals and objectives. All goals are derived or extracted from a value base. The following value assumptions are used to illustrate the impact of values on educational goal statements. We need to plan and construct school buildings that are consistent with the stated values, goals and resultant educational needs of the clients:

Every individual is unique
Every individual is of infinite value
Every individual is entitled to equal access
Every individual is more important than things
People given knowledge and truth will make wise choices
Power must be shared - otherwise it corrupts
The good society is the open society
People are interdependent
Formal education should increase, not decrease, individual options
Values in America are and should be pluralistic

2. A second question of major importance would be - what are the demographic characteristics of the population? Included in demographic studies would be the age, sex, race, fertility, etc. of the population and school enrollments.

   The graphs and tables illustrated by Plates XI-XV are indicative of the rapid change in the racial composition in Chicago between 1940 and 1970. Such information is vital to the location, size and program emphasis needed for facility planning.

PLATE XI

A MAP INDICATING THE WHITE AND NON-WHITE COMPOSITION OF CHICAGO PUBLIC SCHOOLS IN 1950 BY AREA

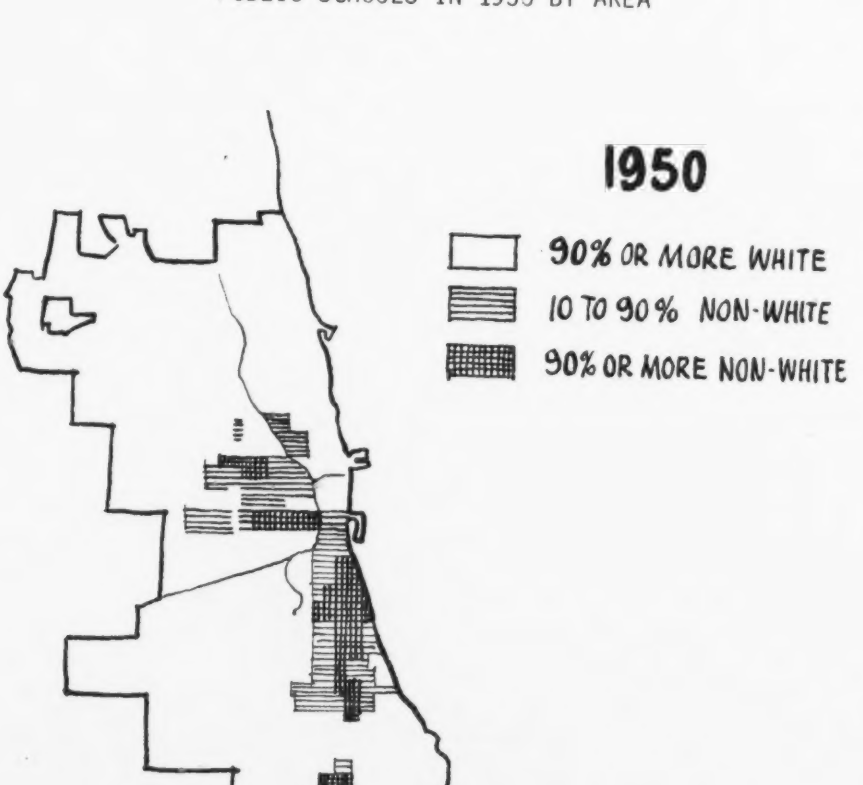


PLATE XII

A MAP INDICATING THE WHITE AND NON-WHITE COMPOSITION OF CHICAGO PUBLIC SCHOOLS IN 1960 BY AREA

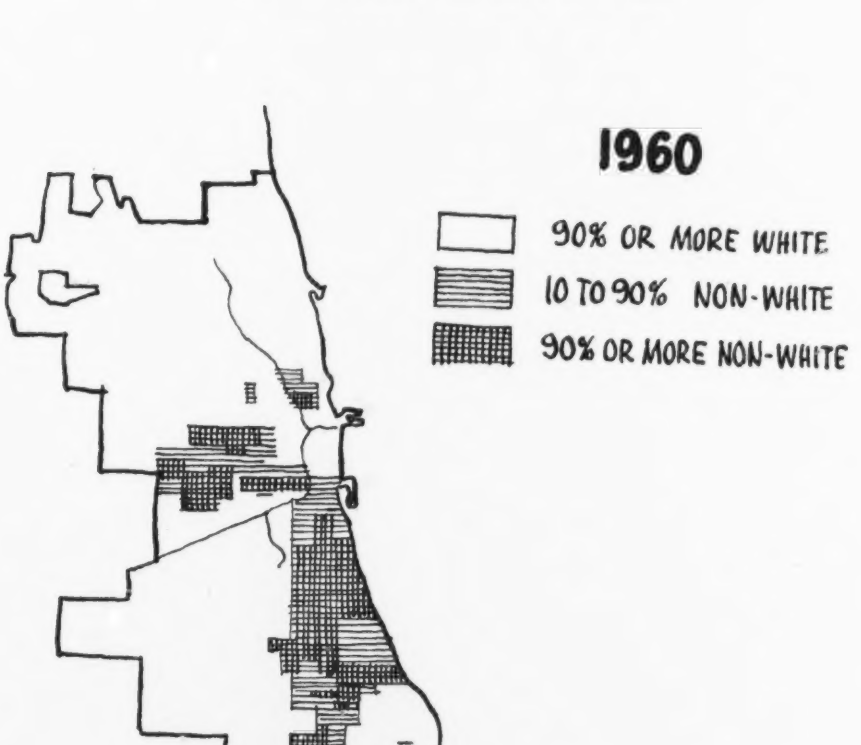


PLATE XIII

A MAP INDICATING THE WHITE AND NON-WHITE COMPOSITION OF CHICAGO PUBLIC SCHOOLS IN 1970 BY AREA

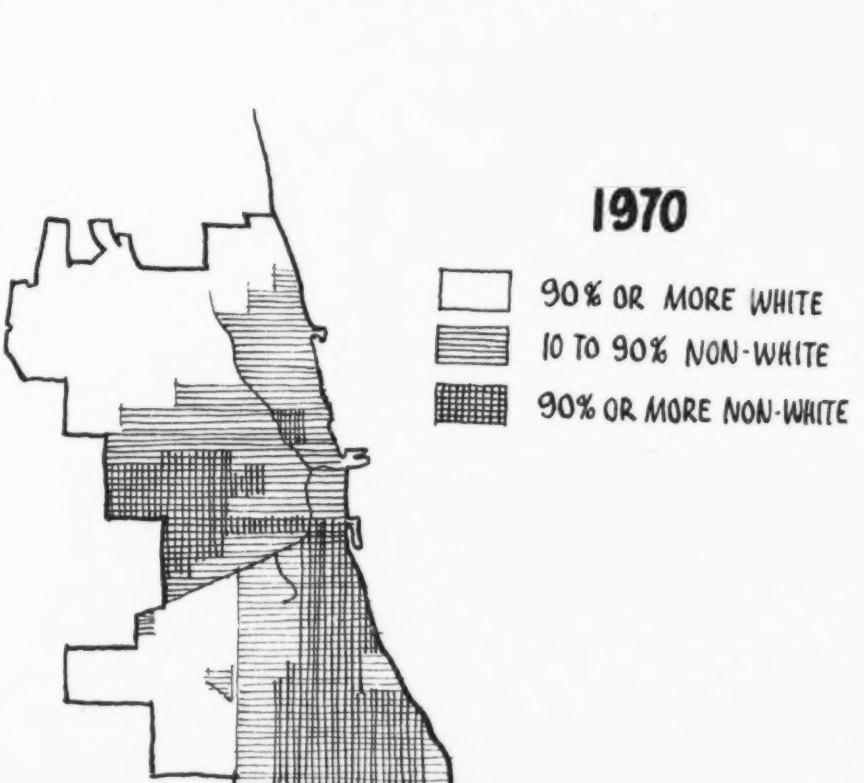


Plate XIV summarizes the number and percent of white and non-white students enrolled in the Chicago Public Schools 1940-1970.

PLATE XIV

CITY OF CHICAGO

RACIAL COMPOSITION, 1940-1970

YEAR	WHITE	%	NON-WHITE	%	TOTAL
1940	3,115,000	91.7	282,000	8.3	3,397,000
1950	3,112,000	85.9	509,000	14.1	3,621,000
1960	2,713,000	76.4	838,000	23.6	3,550,000
1970	2,075,000	62.4	1,250,000	37.6	3,325,000

3. A third basic question would be - what are the economic characteristics of the population? The problems associated with integration are as much or more a function of income as they are of demographic programs.

   Variations in economic characteristics are dramatically illustrated by Plate XV. The medium income ranges from $2,975 in EPU 31 to $21,082 in EPU 5. Certainly such information is needed if economic integration is a goal of planning.

PLATE XV

THE MEDIAN FAMILY INCOMES
IN SELECTED EDUCATIONAL PLANNING UNITS

CITY OF CHICAGO

EPU	MEDIAN FAMILY INCOMES
5	$21,082
7	8,180
13	12,082
28	11,417
31	2,975
62	4,615

4. Fourth - another key question is - what are the labor force characteristics of the population? If the schools are to be responsive to the needs of the community as well as students the answer to question 4 has many implications for the type facilities provided. The example shown in Plate XVI is especially illustrative.

PLATE XVI

THE LABOR FORCE CHARACTERISTICS
OF TWO EDUCATIONAL PLANNING UNITS
IN CHICAGO BY SELECTED TYPES OF OCCUPATIONS

OCCUPATION	EPU #5	EPU #62
Professional and Technical workers	33.2%	4.3%
Managers, Office Proprietors	17.1%	9.8%
Clerical and Sales workers	10.3%	19.7%
Skilled workers	27.0%	6.8%
Unskilled workers	6.6%	44.8%
Unemployed	5.8%	14.6%

5. Fifth - the educational level of the population?

Several studies of note have indicated that the educational attainment by parents is a significant factor with which educators must deal. Plate XVII illustrates information relative to this question. The expectations of the people in EPU would more likely include early preparation for college matriculation.

PLATE XVII

THE MEDIAN SCHOOL YEARS COMPLETED BY PERSONS
TWENTY-FIVE YEARS OLD AND OLDER
IN SELECTED EDUCATIONAL PLANNING UNITS FROM CHICAGO

EPU	MEDIAN SCHOOL YEARS COMPLETED
5	14.1
7	11.2
13	13.3
28	11.2
31	6.9
62	8.3

6. Sixth - what are the educational planning implications derived from legal decisions and corroborative information relevant to legal decisions? This relatively new type question causes many frustrations as the planner seeks ways to operationalize a plan.

The following statements and legal decisions are illustrative:

Separate education (segregated education) cannot be equal education. Designed segregation is illegal, immoral, and educationally unsound. (Brown, 1954, etc.)

School systems throughout the nation, obviously, are not meeting the "all deliberate speed" intent of the Supreme Court of 1956. (Brown II)

Isolated "desegregation plans" by single school districts will increase housing "tilt" and will result and has resulted in resegregation of education. (Grand Rapids, Chicago, etc.)

Educational segregation - under existing school district organization - has and will continue to increase. (1960 and 1970 Census of S.M.A.'s, cities, and urban school districts.)

"Deannexation" of school districts will contribute by design to increased segregation and is therefore inherently illegal. (Benton Harbor, 1971.)

"Back Tracking" from adopted desegregation plans, guidelines, or stated intent, <u>at either the state or local level</u> is illegal. (Kalamazoo, 1971.)

Desegregation plans, involving only city school districts and excluding the surrounding metropolitan areas are clearly unworkable because of demonstrated "white flight". (Indianapolis, 1971.)

State and local governmental actions (including actions of the legislature, the state, and local school boards) have played a substantial role in causing and promoting segregation, i.e., Michigan School District Transportation aid, state board deannexation approvals, etc. (Detroit, 1971)

Education (Constitutionally) is a function and responsibility of the state - local school districts are created, modified, and/or eliminated by the state. (Analysis of State Constitutions.)

The people, the school districts, and the legislature have not ("with all deliberate speed") and will not voluntarily develop and make operational a workable desegregation and integration plan for education.

State and local school boards and school superintendents who openly lead in developing and making operational desegregation and integration plans have been and will be replaced by the existing "elective-selective" process.

Educational leaders (not lawyers and the courts) can best provide the educational plans required to efficiently and effectively design and implement desegregation and integration plans.

Obviously when educational facility planning is on level four, the process has become very complex. There is a myriad of economic, social, religious and cultural forces which influence the educational program and outcomes. Often these forces are at counterpoint and the planning task is to seek a common ground from which alternative programs may evolve and coexist. It is fair to say that Level Four Planning deals to a great extent with the cause and effect of environment on humanity.

III. SUMMARY AND RECOMMENDATIONS

Planning for a temporary two-classroom addition to an existing school in rural Alaska is a considerably different task than the development of a long-range comprehensive educational and educational facilities plan for a large city. Obviously, there is no single plan for planning which can be adopted, as is, and utilized by widely varying school districts located throughout the world. Nor is there a single system of planning which is appropriate for the many differing planning tasks facing a single school district. There is, however, a universal logic, sequence, and process to planning.

Prior to developing and adapting (not adopting) any Plan for Planning, a number of basic questions should be raised and answered:

1. What is the planning task?
   a. To what degree is it a simple or complex task?
2. What are the purposes of this planning task?
   a. To plan a new school building, or addition, or modernization of an existing school?
   b. To plan educational improvements to the total school system?
   c. To develop a comprehensive-coordinated land-use plan - including an educational and school facilities plan?
   d. To develop recommended plans for improving the quality of life and living for all residents? To increase lay citizen participation, understanding, control and support of education? To diffuse and share planning and decision-making?
3. Who should be involved in planning and decision-making?
   a. Educational Planners?
   b. Professional Staff?
   c. City, Urban, Metro Planners, Architects, Demographers?

d. Students, lay citizens, etc.?

4. How much time is available for completing the planning task?
   a. One second?
   b. One day?
   c. One week?
   d. One month?
   e. One year?
5. What human resources are available for the planning task?
6. What are the roles and responsibilities of the various participants in planning?
   a. Advisor?
   b. Coordinator?
   c. Technical Consultant?
   d. Decision-maker?
7. What fiscal resources are available for the planning task?
8. What is the priority of importance of this planning task?

Answers to the above questions and issues can be utilized in developing a specific plan. Each planning task needs to be individuall adapted and continuously modified from the basic plan.

An Overview of Level One to Level Four Planning

The major components of a comprehensive long-range educational and educational facilities plan may be categorized into six types of components:

1. Goals
2. Community Characteristics

3. Educational Program
4. School Enrollments
5. Educational Facilities
6. Projections and implication based on component types 1-5

Plate XVIII summarizes in question format these six types of planning components and relates them to an appropriate level of planning.

PLATE XVIII

COMPONENTS OF A FOUR LEVEL - COMPREHENSIVE, LAND USE, EDUCATIONAL AND EDUCATIONAL FACILITIES PLAN

	Level
A. Goals:	
1. What are the human values and aspirations of the population?	IV
2. What are the land-use goals of the area?	III
3. What are the educational goals of the school system?	II
4. What are the educational facility goals of the school?	I
B. Community Characteristics:	
1. What are the demographic characteristics of the population?	IV
2. What are the economic characteristics of the population?	IV
3. What are the occupational characteristics of the population?	IV
4. What is the existing physical form of the area?	III
5. How do we currently use our land?	III
6. What should be the future physical form of the area?	III
C. Educational Program:	
1. What are the educational aspirations of the population?	IV
2. What are the "non-school" educational resources of the area?	III
3. What is the most desirable school organization?	II
4. How large or small should our schools be?	II
5. What is the desired school program?	II
6. Which emerging curriculum concepts do we accept? (e.g. individualization, continuous progress, open space, etc.)	II
7. What provisions should we make for exceptional children?	II
8. To what extent will the community use our schools?	II
D. School Enrollments:	
1. What are the demographic characteristics of the enrollment?	IV
2. What are the socio-economic factors impacting future enrollments?	IV
3. What are the land-use factors impacting future enrollments?	III
4. What are the enrollment implications of planned curriculum changes?	II
5. How many pre-school children are there?	I
6. How many students are enrolled in each school, by grade?	I
7. What is the past history of enrollments?	I
8. Where do the children live?	III
9. How many non-resident pupils?	I
10. How many tuition pupils?	I

11. How many parochial and private school pupils?..... I
12. What are the expansion or reduction plans of private or parochial schools?..... I
13. How many new residences are being built or planned?..... III
14. How many and what ages are the children in these new homes?. I
15. Which enrollment estimating method should we use?..... I or III
16. What is the estimate of future enrollments?..... I or III
17. What are the assumptions of the estimate?..... I to IV

E. Educational Facilities:

1. Who do the schools serve?..... IV
2. How are the school buildings to be combined and/or coordinated with all other people-serving places and spaces?..... III
3. What is to be the future land-use characteristics of the schools service area?..... III
4. What are the future educational program needs of the school building?..... II
5. How adequate is each school building in terms of
   a. age..... I
   b. size of site..... I
   c. facilities (floor plan)..... I
   d. educational adequacy (rating form)..... I
   e. structural adequacy..... I
   f. pupil capacity..... I
   g. pupil utilization (capacity-enrollment)..... I
   h. estimated enrollments..... I
6. What is the total capacity of all school buildings?..... I
7. What is the total utilization of all school buildings?..... I
8. How safe are the buildings?..... I
9. What modernization is needed?..... I

F. Summary - A Long-Range Educational and Educational Facility Plan:

1. What are the long-range goals, objectives and priorities?.. I-IV
2. What are the desired land-use patterns?..... III
3. What is the desired educational program?..... II
4. What is the recommended long-range educational facility plan? I-IV
5. How much will it cost?..... I-IV
6. How can it be financed?..... I-IV
7. What are the first steps in reaching the long-range plan?.. I-IV
8. What is the middle-range plan?..... I-IV
9. What are the next steps in planning?..... I-IV

This paper has conceptualized four levels of educational and facilities planning.

These are:

1. Educational Facility Plan
2. Educational and Educational Facility Plan
3. Land Use, Educational and Educational Facility Plan
4. Comprehensive, Land Use, Educational and Educational Facility Plan

The events and processes involved in implementation become progressively more complex as the planner moves from Level One Planning to Level Four Planning.

As the planner or researcher identifies the planning task to be attempted the outline presented in this paper and summarized in Plate XVIII should be helpful in problem definition and resource allocation.